IN THE CLAIMS

Please amend the claims as follows:

1. (original) A quartz glass crucible for pulling up a silicon single crystal, said quartz glass crucible having an opaque outer layer formed by melting natural silica powder and a transparent layer formed on the inside thereof, characterized in that the transparent layer is made of natural quartz glass with a thickness of 0.4 to 5.0 mm, and a transparent layer made of a synthetic quartz glass is formed on the inside of the crucible in the range from at least 0.15 to 0.55 L in terms of a distance L from the center of the bottom of the inner surface of the quartz glass crucible to the upper end face along the inner surface of the crucible.

2. (original) The quartz glass crucible for pulling up a silicon single crystal according to Claim 1, characterized in that a transparent layer made of a synthetic quartz glass with a thickness of 0.2 to 1.5 mm is formed in the range from 0.15 to 0.55 L in terms of a distance L from the center of the bottom of the inner surface of the quartz glass crucible to the upper end face along the inner surface thereof.

3. (currently amended) The quartz glass crucible for pulling up a silicon single crystal according to Claim 1 [~~or 2~~], characterized in that an inner surface of the crucible in the range from 0.6 to 1.0 L in terms of a distance L from the center of the bottom of the inner surface of the quartz glass crucible to the upper end face along the inner surface thereof is a transparent layer made of natural quartz glass.

4. (currently amended) The quartz glass crucible for pulling up a silicon single crystal according to Claim 1 [~~or 2~~], characterized in that a transparent layer made of a synthetic quartz glass with a thickness of 0.2 mm or less is formed on the inner surface of the crucible in the range from 0.6 to 1.0 L in terms of a distance L from the center of the bottom of the inner surface of the quartz glass crucible to the upper end face along the inner surface thereof.

5. (currently amended) The quartz glass crucible for pulling up a silicon single crystal according to **Claim 1** [~~any one of Claims 1 to 4~~], characterized in that an average OH group concentration CA in the transparent layer made of a synthetic quartz glass is from 100 to 300 ppm, an average OH group concentration CB in the transparent layer made of natural quartz glass is from 60 to 150 ppm, an average OH group concentration CC in the opaque outer layer made of natural quartz glass is from 20 to 60 ppm, and they satisfy the relation: CA > CB > CC.

6. (original) A method for producing a quartz glass crucible for pulling up a silicon single crystal according to Claim 1, characterized by making an inner cavity of a quartz glass crucible base body mounted on a rotatable mold a high temperature atmosphere, feeding natural silica powder to the high temperature atmosphere in the inside of an opaque outer layer after or during the formation of the opaque outer layer by partially melting the inner cavity to form a transparent layer made of natural quartz glass on the entire inner surface of the opaque outer layer by melting and vitrifying the natural silica powder, and then feeding a synthetic silica powder and melting and vitrifying the

synthetic silica powder to form a transparent layer made of a synthetic quartz glass on the inside of the crucible in the range from at least 0.15 to 0.55 L in terms of a distance L from the center of the bottom of the inner surface of the quartz glass crucible having the transparent layer made of natural quartz glass to the upper end face along the inner surface of the crucible.

7. (original) A quartz glass crucible for pulling up a silicon single crystal, said quartz glass crucible having an opaque outer layer made of natural quartz glass and a transparent layer formed on the inside thereof, characterized in that the number of brown rings per unit area (cm^2) observed in the range from the initial surface level of a silicon melt to 0.3 M in terms of a length M from the initial surface level of the silicon melt to the surface level of the remaining melt after pulling up a single crystal measured along the inner surface of the quartz glass crucible is 1.8-fold or more greater than the number of brown rings observed in the range up to 0.3 M above the surface level of the remaining melt.

8. (original) The quartz glass crucible for pulling up a silicon single crystal according to Claim 7, characterized in that the number of brown rings per unit area (cm^2) observed in the range from the initial surface level of a melt to 0.3 M is 2.5-fold or more greater than the number of brown rings observed in the range up to 0.3 M above the surface level of the remaining melt.

9. (original) The quartz glass crucible for pulling up a silicon single crystal according to Claim 7, said quartz glass crucible having an opaque outer layer made of

natural quartz glass and a transparent layer formed on the inside thereof, characterized in that a transparent layer made of natural quartz glass or a mixture of natural and synthetic quartz glasses is formed on the inner surface of the crucible in the range from the initial surface level of a silicon melt to 0.3 M in terms of a length M from the initial surface level of the silicon melt to the surface level of the remaining melt after pulling up a single crystal measured along the inner surface of the quartz glass crucible, a transparent layer made of a synthetic quartz glass is formed on the inner surface of the crucible in the range up to 0.3 M above the surface level of the remaining melt, and the number of brown rings per unit area (cm^2) observed in the range from the initial surface level of the melt to 0.3 M is 1.8-fold or more greater than the number of brown rings observed in the range up to 0.3 M above the surface level of the remaining melt.

10. (original) The quartz glass crucible for pulling up a silicon single crystal according to Claim 9, characterized in that the number of brown rings per unit area (cm^2) observed in the range from the initial surface level of a melt to 0.3 M is 2.5-fold or more greater than the number of brown rings observed in the range up to 0.3 M above the surface level of the remaining melt.

11. (original) The quartz glass crucible for pulling up a silicon single crystal according to Claim 7, said quartz glass crucible having an opaque outer layer made of natural quartz glass and a transparent layer formed on the inside thereof, characterized in that the inner surface of the crucible in the range from the initial surface level of a melt to 0.3 M is subjected to an etching treatment or a sandblast process, and the number of

brown rings per unit area (cm^2) observed in the range after it is used for pulling up a silicon single crystal is 1.8-fold or more greater than the number of brown rings observed in the range up to 0.3 M above the surface level of the remaining melt which is not subjected to the etching treatment or the sandblast process.

12. (original) The quartz glass crucible for pulling up a silicon single crystal according to Claim 11, characterized in that the number of brown rings per unit area (cm^2) observed in the range from the initial surface level of a melt to 0.3 M is 2.5-fold or more greater than the number of brown rings observed in the range up to 0.3 M above the surface level of the remaining melt.

13. (currently amended) The quartz glass crucible for pulling up a silicon single crystal according to **Claim 7** [~~any one of Claims 7 to 12~~], characterized in that the number of brown rings observed in the range up to 0.3 M above the surface level of the remaining melt is 0.02 to 0.9/cm^2.

14. (currently amended) The quartz glass crucible for pulling up a silicon single crystal according to **Claim 7** [~~any one of Claims 7 to 12~~], characterized in that the number of brown rings per unit area (cm^2) observed in the range from the initial surface level of a melt to 0.3 M is 2.0 to 5.0/cm^2.

15. (original) A method for producing a quartz glass crucible for pulling up a silicon single crystal according to Claim 7, characterized by making an inner cavity of a quartz

glass crucible base body mounted on a rotatable mold a high temperature atmosphere, feeding natural silica powder or a powder mixture of natural and synthetic silicas to the high temperature atmosphere in the inside of an opaque outer layer after or during the formation of the opaque outer layer by partially melting the inner cavity to form a transparent layer made of natural quartz glass or a mixture of natural and synthetic quartz glasses in the range from the initial surface level of a melt to 0.3 M by melting and vitrifying the natural silica powder or the powder mixture of natural and synthetic silicas, and then feeding a synthetic silica powder and melting and vitrifying the synthetic silica powder to form a transparent layer made of a synthetic quartz glass on the inner surface of the crucible in the range up to 0.3 M above the surface level of the remaining melt.

16. (new) The quartz glass crucible for pulling up a silicon single crystal according to Claim 2, characterized in that an inner surface of the crucible in the range from 0.6 to 1.0 L in terms of a distance L from the center of the bottom of the inner surface of the quartz glass crucible to the upper end face along the inner surface thereof is a transparent layer made of natural quartz glass.

17. (new) The quartz glass crucible for pulling up a silicon single crystal according to Claim 2, characterized in that a transparent layer made of a synthetic quartz glass with a thickness of 0.2 mm or less is formed on the inner surface of the crucible in the range from 0.6 to 1.0 L in terms of a distance L from the center of the bottom of the inner surface of the quartz glass crucible to the upper end face along the inner surface thereof.

18. (new) The quartz glass crucible for pulling up a silicon single crystal according to Claim 2, characterized in that an average OH group concentration CA in the transparent layer made of a synthetic quartz glass is from 100 to 300 ppm, an average OH group concentration CB in the transparent layer made of natural quartz glass is from 60 to 150 ppm, an average OH group concentration CC in the opaque outer layer made of natural quartz glass is from 20 to 60 ppm, and they satisfy the relation: CA > CB > CC.

19. (new) The quartz glass crucible for pulling up a silicon single crystal according to Claim 3, characterized in that an average OH group concentration CA in the transparent layer made of a synthetic quartz glass is from 100 to 300 ppm, an average OH group concentration CB in the transparent layer made of natural quartz glass is from 60 to 150 ppm, an average OH group concentration CC in the opaque outer layer made of natural quartz glass is from 20 to 60 ppm, and they satisfy the relation: CA > CB > CC.

20. (new) The quartz glass crucible for pulling up a silicon single crystal according to Claim 4, characterized in that an average OH group concentration CA in the transparent layer made of a synthetic quartz glass is from 100 to 300 ppm, an average OH group concentration CB in the transparent layer made of natural quartz glass is from 60 to 150 ppm, an average OH group concentration CC in the opaque outer layer made of natural quartz glass is from 20 to 60 ppm, and they satisfy the relation: CA > CB > CC.